

## ABSTRACT

A wavelength selective switching device and method for selectively transmitting optical signals based on wavelength utilizes diffraction to spatially  
5 separate the optical signals of different wavelengths such that the optical signal of a selected wavelength can be selectively transmitted. The wavelength selective switching device selectively rotates the polarization components of the optical signals such that the polarization states of the polarization components are the same in both incoming and outgoing directions at the diffraction grating. Thus, a  
10 diffraction grating with a high grating line frequency (e.g. greater than 900 grating lines per mm for signals in the 1550 nm wavelength range) can be used for diffracting the polarization components of the optical signals in both the incoming and outgoing directions.